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ABSTRACT

This collection of abstacts is part of a continuing series providing information on recent doctoral dissertations. The 16 titles deal with the following topics: a comparison of social science textbooks with student reading levels; the correlation between eighth graders' reading ability and their comprehension of content textbooks; the effects of nonprose textual characteristics upon short-term recall; using graphic arts in teaching secondary reading skills; readability of technical vocabulary in social studies materials as comprehended by Mexican American and non-Mexican American students; the effectiveness of problem-solving reading materials on reading comprehension; the effects of an advance organizer on fifth grade social studies comprehension; a comparison of two definitions of the purpose of reading in relation to language functions; reading difficulty in world history textbooks; relationships between skill development and reading comprehension in disadvantaged students; reading task difficulty and beginning office jobs; comprehension of information in picture-text amalgams; a comparison of the reading levels of automotive mechanics with repair manuals; advance organizers and learning and retention of biology; reading comprehension and the symbols and structures of mathematical English; and reading comprehension and social studies content. (MAI)

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Reading in the Content Areas:

Abstracts of Doctoral Dissertations Published in Dissertation Abstracts International, January through June 1978 (Vol. 38 Nos. 7 through 12)

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Abstracts of the following dissertations are included in this collection:

Bertalan, John J.
A COMPARISON OF THE READABILITY OF COMMUNITY COLLEGE SOCIAL SCIENCE TEXTBOOKS WITH STUDENT READING LEVELS AND THE EFFECT ON ACADEMIC ACHIEVEMENT

Clarke, Barbara K.
EIGHTH GRADE STUDENTS' READING ABILITIES AND THEIR COMPREHENSION OF SELECTED SOCIAL STUDIES AND SCIENCE TEXTBOOKS

Cole, Jack Newcombe
THE EFFECTS OF NON-PROSE TEXTUAL CHARACTERISTICS UPON SHORT-TERM RECALL OF MAJOR CONCEPTS AND SUPPORTING DETAILS IN INSTRUCTED AND UNINSTRUCTED CONDITIONS

Conroy, Michael Thomas
A CURRICULUM FOR THE TEACHING OF READING SKILLS THROUGH GRAPHIC ARTS AT THE SECONDARY SCHOOL LEVEL

Freeland, Kent Eugene
READABILITY OF SOCIAL STUDIES MATERIAL WITH TECHNICAL VOCABULARY AS COMPREHENDED BY MEXICAN-AMERICAN AND NON-MEXICAN-AMERICAN STUDENTS

Grau, Jeanine Louise Beery
AN INVESTIGATION OF THE EFFECTIVENESS OF PROBLEM-SOLVING READING MATERIALS ON THE READING COMPREHENSION OF FIRST-SEMESTER COLLEGE GERMAN STUDENTS

Kurchak, Barbara Joan Hall
THE EFFECTS OF USING AN ADVANCE ORGANIZER ON VARIOUS LEVELS OF COMPREHENSION IN FIFTH GRADE SOCIAL STUDIES

McMillin, Larry Melvelle
THE DIFFERENCES BETWEEN READING TEACHER AND BUSINESS TEACHER-ESTABLISHED PURPOSES FOR READING TWO FUNCTIONS OF LANGUAGE

Miller, William Blaine
FACTORS IN READING DIFFICULTY OF WORLD HISTORY TEXTBOOKS

Price, Patrick Charles
AN INVESTIGATION OF DISADVANTAGED EIGHTH GRADE STUDENTS' SOCIAL STUDIES CONCEPT ATTAINMENT, STUDY SKILLS, AND READING COMPREHENSION

Ross, Novella M.
AN ANALYSIS OF THE NATURE AND DIFFICULTY OF READING TASKS ASSOCIATED WITH BEGINNING OFFICE WORKERS' JOBS IN THE COLUMBUS, OHIO METROPOLITAN AREA

Stone, David Edey
COMPREHENSION OF INFORMATION IN PICTURE-TEXT AMALGAMS IN PROCEDURAL TEXTS

Suttle, Robert Lemuel
READING LEVELS OF AUTOMOTIVE MECHANICS STUDENTS AS COMPARED TO READING LEVELS OF THREE MAJOR AUTO-MAKERS' REPAIR MANUALS

Varano, Samuel Peter
THE EFFECTS OF ADVANCE ORGANIZERS AND BEHAVIORAL OBJECTIVES ON THE FACILITATION OF LEARNING AND RETENTION OF A BIOLOGY UNIT

Watkins, Ann Esther
THE EFFECT OF THE SYMBOLS AND STRUCTURES OF MATHEMATICAL ENGLISH ON THE READING COMPREHENSION OF COLLEGE STUDENTS

Wilkens, Hannalyn Boxer
READING COMPREHENSION AND SOCIAL STUDIES
CONTENT: A PREPARATION OF MATERIALS

A COMPARISON OF THE READABILITY OF COMMUNITY COLLEGE SOCIAL SCIENCE TEXTBOOKS WITH STUDENT READING LEVELS AND THE EFFECT ON ACADEMIC ACHIEVEMENT Order No. 7731774

BERTALAN, John J., Ed.D. Florida Atlantic University, 1977 147pp.

The purpose of the study was to determine the reading grade placement levels of junior college students in relationship to the readability grade placement levels of their assigned social science textbook, and determine the relationship of these variables with the grade in course.

The average student had a reading grade placement level of 12.44. The average readability grade placement level of the eight social science textbooks was 11.3. The average student's reading grade placement level was 1.1 years higher than the readability grade placement level of the assigned social science textbooks.

Of the 375 students, 25.87 percent of the students read below the average level of the assigned social science textbook, and 72.53 percent of the students had reading grade placement levels above the assigned textbooks. Results indicate six students, or 1.6 percent with a reading grade placement level of 11.3, identical to the average textbook readability level.

The Pearson Correlation Coefficient was calculated by matching the independent variable X_3 (the difference between a student's reading grade placement level and the assigned textbook's readability grade placement level, also called the gap), with dependent variable Y (the grade in course): X_3rY.

The correlation coefficient of the eighty-eight students who possessed a negative gap (those whose reading grade placement level was below the readability grade placement level of the assigned textbook) was: $-X_3rY = -0.0709066$. Although the coefficient was in the negative direction, the coefficient was not significant at either the .01 or the .03 level, with eighty-six degrees of freedom. Conclusion: there is not a significant relationship between community college students who have reading grade placement levels below the readability grade placement level of the assigned social science textbook and their resultant grade in the course.

The Pearson Correlation Coefficient was calculated by pairing the students who had reading grade placement levels above the readability grade placement levels of the assigned textbooks with their final grades in the course. The correlation coefficient of these 198 students was: $+X_3rY = +.242992$. With 196 degrees of freedom, the relationship between the students who had reading grade placement levels above the readability level of the assigned social science textbook and the final grades in the course was significant at both the .05 and .01 levels. In effect, a significant Pearson Correlation Coefficient between these variable demonstrates that as a student's reading grade placement level increased above the readability grade placement level of the assigned social science textbook, his/her final grade in the course improved.

The test for the difference between means suggested that, as a group, students who possess reading grade placement levels higher than the readability grade placement levels of their assigned social science textbooks receive significantly higher grades than do students who possess reading grade placement levels below the readability grade placement level of their assigned social science textbook. Similarly, students who possess reading grade placement levels below the readability grade placement level of the assigned social science textbook received significantly lower grades in course, than students who possessed reading grade placement levels equal to or above the readability grade placement levels of the assigned social science textbook.

EIGHTH GRADE STUDENTS' READING ABILITIES AND THEIR COMPREHENSION OF SELECTED SOCIAL STUDIES AND SCIENCE TEXTBOOKS Order No. 7808945

CLARKE, Barbara K., Ph.D. The Florida State University, 1977. 112pp. Major Professor: Dr. Edwin H. Smith

given examiner-made comprehension tests which were based on samples abstracted from social studies and science texts. The readability of each text was determined through the use of readability formulas.

Analyses of the students reading comprehension scores and their reading grade equivalents resulted in the following conclusions: (1) the minimum reading level needed by eighth grade students to satisfactorily comprehend their assigned social studies textbooks is tenth grade, (2) the minimum reading level needed by eighth grade students to satisfactorily comprehend their assigned science textbooks is eleventh grade, and (3) the Smith Readability Formula was the most accurate in judging readability levels of both the social studies and science textbooks used in this study.

The threefold purposes of this study were: (1) to determine the minimum reading ability needed by 75% or more of an eighth grade student population to independently comprehend their assigned social studies and science textbooks, (2) to determine the differences in the eighth grade students' comprehension scores on tests developed from their assigned texts in social studies and science, and (3) to determine the relative accuracy of three readability formulae.

Approximately 300 students enrolled in general and advanced classes in two middle schools located in Brevard County, Florida were given the California Test of Basic Skills. This test revealed that the students' reading grade level equivalents ranged from grade 6.0 to 12+. The students were also

THE EFFECTS OF NON-PROSE TEXTUAL CHARACTERISTICS UPON SHORT-TERM RECALL OF MAJOR CONCEPTS AND SUPPORTING DETAILS IN INSTRUCTED AND UNINSTRUCTED CONDITIONS

COLE, Jack Newcombe, Ph.D.
University of Maryland, 1977

Supervisor: Beth Davey

The purpose of this study was to assess the effects of selected textual characteristics and instruction upon reading time and recall of major concepts and supporting details contained in a textbook-like passage of social studies material. Recall was measured using a passage-dependent, multiple-choice Immediate Recall Test (IRT) constructed and validated by the experimenter in a pilot study.

One hundred eighty-six tenth-grade males from an all-boys, private Catholic military academy participated in the study. Each subject received a set of instructions telling him how to read the passage to which he was assigned, one of the four passage versions, and the Immediate Recall Test. The four passage versions were: Text Only; Text with Headings; Text with Illustrations; and Text with Headings and Illustrations. Each passage version was accompanied by one of two sets of instructions, either telling the subject merely to read the passage for later testing, or to use a specific reading strategy. Thus, there were eight treatment groups. Each subject read the instructions, read the passage, recorded his reading time for the passage, and completed the Immediate Recall Test.

Two-way analyses of variance for textual condition (four levels) and instructions (two levels) were performed on the data from the Immediate Recall Test (Main Idea, Supporting Detail, and Total scores) and on the reading time data. Reliability of the Immediate Recall Test was calculated using coefficient alpha and best-split coefficients and compared with reliabilities established during the pilot.

Within the limitations of this study, the following conclusions were drawn from the findings: 1. The non-prose textual characteristics had no significant effect upon scores on the Immediate Recall Test or upon reading times. There was, however, evidence that the addition of these non-prose textual characteristics led to a systematic increase in reading times. 2. Instructions given to subjects in how to read the passage had no effect upon Immediate Recall Test scores. Instructions did significantly increase reading time. Newman-Keuls post hoc comparisons within passage versions suggested that this effect was significant only for the Text Only condition. Thus, it was concluded that the increase in reading times was a general effect of instructions.

Nonsignificant findings limited implications for theory to suggestions for further assessment of the behaviors explored in this study.

Implications for practice were also limited by the nonsignificant findings and included the suggestion that teachers experiment with ways to teach their students to read their textbooks more effectively.

Implications for research drawn from the results of this study included the following: first, further refinement and extension of the research methodology used in this study; second, exploration of new ways to teach students to use their textbooks; third, exploration of new design options for textbooks; fourth, further development and validation of a theoretical framework to explain the process in which a student engages while reading a textbook; and fifth, the development of new research paradigms and methodologies in order to explore this problem more fully. Order No. 77-27,994, 260 pages.

A CURRICULUM FOR THE TEACHING OF READING SKILLS THROUGH GRAPHIC ARTS AT THE SECONDARY SCHOOL LEVEL Order No. 7808991

CONROY, Michael Thomas, Ph.D. Fordham University, 1978. 396pp. Mentor: Carolyn Hedley

The purpose of this study was to design, validate, and implement a curriculum that would determine whether reading skills could be taught effectively to seventh grade boys and girls through the graphic arts shop projects and activities. This researcher sought to determine, through the teaching of this curriculum by three industrial arts teachers other than the researcher, whether reading skills could be improved as a result of participation in the study.

The researcher designed a curriculum that would provide the teachers and students with an innovative approach to the teaching and learning of reading skills in the industrial arts areas. These areas have manual activities as their foundation. The participating teachers were given all of the necessary instructions and materials to implement the curriculum. A Teacher's Handbook which provided the methodology, structure, and sequence of the ten week program was provided. The curriculum was validated by seven experts in the fields of reading and industrial arts education.

During the spring of 1977, three experienced industrial arts teachers, other than the researcher, implemented the final validated curriculum with three classes of seventh graders in one intermediate school on Staten Island, New York. There were sixty-nine boys and girls in the study. The ten-week program involved the use of a standardized reading test (pretest, posttest), eight criterion-referenced tests, eight teacher rating scales, bookbinding and linoleum block printing projects, and activities related to graphic arts.

The criterion-referenced tests and teachers' rating scales were formulated by the researcher and validated by the members of the jury of experts. The validated instruments were used in the study.

The results of the study indicated that the students learned reading skills and improved these skills as they advanced from one session to the next. The study showed that reading skills can be taught effectively through the shop project and activities. The related information sheets enabled the students to apply the technical terms learned to related shop activities. The related information tests measured their ability to read and understand the sheets. The correct completion of the shop projects was dependent upon the students' ability to read and follow directions exactly as they were written. This provided the students with the opportunity to use reading in a practical setting.

The findings indicated that only one significant difference existed between two of the three class means at the .05 level on the standardized reading test.

The findings of the analysis of variance used to test hypothesis 2 (Sessions 2, 3, 4, 5, 6, 7, 8, 9) indicated that significant differences existed among the three class means (7A, 7B, 7C) at the .01 level on the related information tests. The conclusion drawn from these results is that the students improved their reading skills as they progressed from session to session. The results showed that the students learned from their experiences and mastered the reading skills taught. The study proved that reading skills can be taught effectively through graphic arts.

The findings of the analysis of variance used to test hypothesis 3 (Sessions 2, 3, 4, 5, 6, 7, 8, 9) indicated that significant differences existed among the three means at the .01 level on the Teachers' Rating Scales. Thus the students were able to use the reading skills learned in a practical situation. They were able to read the printed sheets, follow the directions, and make a project or part of a project. The study proved that reading skills can be related to manual activities.

READABILITY OF SOCIAL STUDIES MATERIAL WITH TECHNICAL VOCABULARY AS COMPREHENDED BY MEXICAN-AMERICAN AND NON-MEXICAN-AMERICAN STUDENTS

FREELAND, Kent Eugene, Ph.D.
The University of Iowa, 1977

Supervisor: Professor Lloyd L. Smith

The purpose of this investigation was to examine the readability of selected intermediate grade social studies textbooks as evidenced by (1) readability formulas and (2) test results by Mexican-American and non-Mexican-American students.

Follett, Ginn, and Harcourt textbooks were analyzed by applying Fry and Dale-Chall formulas to randomly selected passages. These passages were examined to decide if certain technical vocabulary caused comprehension problems.

Students from grades four, five, and six in two school districts were given two written tests. One school district supplied twenty-four Mexican-American students: the other supplied forty-seven Mexican-American students. An equal number of non-Mexican-American students were used. The first test was a cloze test whereby each student had to supply approximately fifty missing words. The second test was a five-question multiple choice test over the same passage as the cloze.

Additional data--such as standardized test scores, IQ scores, participation in a free lunch program, and length of residence in the district were collected. All information was coded on IBM key punch cards and analyzed at the University of Iowa Computer Center.

The following conclusions were reached after an analysis of the data: 1. The fourth, fifth, and sixth grade social studies textbooks of this investigation appeared to be too difficult for the grade level intended. Readability formulas supported this. Cloze tests also bore this out for Mexican-American and non-Mexican-American students. The texts examined were at the frustration level for 77% of the non-Mexican-American students and 91% of the Mexican-American students. 2. The social studies texts in this investigation revealed a high degree of in-

ternal variability. Texts did not uniformly progress from easy reading in the first few chapters to difficult reading in the last few chapters. 3. The Dale-Chall and Fry formulas did not consistently agree on grade levels. However, they did seem to exhibit a relationship. The Fry usually was one grade lower than the Dale-Chall on the same passage. 4. There were significantly high intercorrelations among the results of the investigator-constructed tests: cloze test (exact-word replacement--E; synonym--S; and totally unrelated response--T) and multiple choice test--MC. 5. There were significantly high intercorrelations among standardized test scores (Stanford Achievement Test for reading comprehension--RDG; Stanford Achievement Test for social science--SS; and Lorge-Thorndike Intelligence Test--IQ) and the results of investigator-constructed tests--E, S, T, ES, and MC. 6. There were significant differences between Mexican-American and non-Mexican-American students on standardized, cloze, and multiple choice tests--SS, IQ, E, T, ES, and MC. The non-Mexican-American group scored higher. It must naturally be kept in mind that culture bias in the test instruments, along with a student's skill in taking tests can be influencing factors in the test results. 7. Those Mexican-American students who received free lunch scored significantly lower on RDG, E, T, ES, and MC than the Mexican-Americans who did not receive free lunch. 8. For all intermediate grade students combined, there were significantly high correlations between per cent of technical vocabulary correct on the cloze tests and the standardized test results for SS, RDG, and IQ. 9. The social studies text passages contained a high percentage of technical vocabulary. 10. There was a significant difference between Mexican-American and non-Mexican-American students on the percent of technical vocabulary that were correctly supplied on the cloze tests. Non-Mexican-Americans gave correct answers more frequently than Mexican-Americans. Order No. 77-28,454, 250 pages.

AN INVESTIGATION OF THE EFFECTIVENESS OF PROBLEM-SOLVING READING MATERIALS ON THE READING COMPREHENSION OF FIRST-SEMESTER COLLEGE GERMAN STUDENTS

GRAU, Jeanine Louise Beery, Ph.D.
Purdue University, 1977

Major Professor: Joseph A. Wipf

This study was designed to measure the relative effectiveness of three techniques for developing reading comprehension of college students enrolled in beginning German. More specifically, this investigation examined the feasibility of employing readings containing problem-solving cues as a pedagogical device for teaching reading in the early stages of foreign language acquisition.

The research involved 88 students enrolled in first-semester German at Purdue University during the Fall Semester of 1974. Students from each of six sections of German 101 were randomly divided into three groups. Each group was exposed to one of the three strategies for teaching reading throughout one 15-week semester.

Students in Group A (n=28) read one experimental sight reading per week, which contained lexical, morphological, and syntactical cues designed to teach students important decoding skills such as: the art of inference, the recognition of cognates and root words, and intelligent contextual guessing. These students also completed four word-building lessons throughout the semester, which were constructed to give students an overview of the relationship between German and English vocabulary and a brief introduction to derivational systems in German.

Students in Group B (n=29) read one conventional sight reading each week containing no special cues or reading aids. Words which were unfamiliar to the students were glossed with English equivalents. Students in Group C (n=31) received no special training in reading.

The investigation tested the basic null hypothesis that there is no significant difference in the effectiveness of the three strategies in developing reading comprehension. An analysis of variance (ANOVA) and an analysis of covariance (ANCOV), using the Modern Language Aptitude Test and an Interest-Motivation Test as covariates, were employed to compare the achievement of the three groups on three examinations: the Pimsleur Reading Comprehension Test; a Reading Comprehension Test designed for German 101 students at Purdue University; and the Final Examination for the course. Both analyses revealed that Group A performed significantly better ($p < .05$) than did Groups B and C on the Pimsleur Reading Comprehension Test. There was no significant difference among the three groups on the other two criterion measures.

An analysis of variance was also employed to compare the effects of the three strategies on maintaining student interest in the study of German. There was no significant difference among the three groups.

Subsequent analyses of variance examined the effects of a given strategy combined with language aptitude and interest-motivation. High levels of language aptitude and interest-motivation were found to be advantageous in promoting achievement for all learners.

The results of this study suggest that, at the beginning level of German language study, the use of sight readings containing lexical, morphological, and syntactical cues can enhance student comprehension of unfamiliar reading selections.

Order No. 77-30,081, 261 pages.

THE EFFECTS OF USING AN ADVANCE ORGANIZER ON VARIOUS LEVELS OF COMPREHENSION IN FIFTH GRADE SOCIAL STUDIES Order No. 7808909

KURCHAK, Barbara Joan Hall, Ed.D. University of Colorado at Boulder, 1977. 142pp. Director: Professor Donald E. Carline

Proolem

The problem was twofold: would the use of an advance organizer in fifth grade social studies classes have any effect on literal, interpretive, and evaluative comprehension, and would there be a difference in reading achievement?

Method

Three hundred and nine fifth grade students from fourteen classrooms were randomly stratified into six treatment groups on the basis of high, average, and low reading ability as measured by the reading comprehension section of the Stanford Diagnostic Reading Test, Level II. The six groups and their treatments were: Advance Organizer Group 1 received two literal questions. Group 2 received two interpretive questions; Group 3 received two evaluative questions; Group 4, one literal and one interpretive question; Group 5 one literal and one evaluative question; Group 6 received one interpretive and one evaluative question. Group 7 served as the control and was given no advance organizer. During a one-hour class period, students in the six groups were asked to read their organizers, then an assigned chapter from a fifth grade social studies textbook, while the control group read only the same chapter. All students answered a 12-item post-test composed of four literal, four interpretive, and four evaluative questions. The four hypotheses tested were: 1. There was no significant difference in reading comprehension achievement among fifth graders who used advance organizers and those who didn't. 2. There was no significant difference in reading comprehension achievement among low achievers, average achievers, and high achievers when advance organizers were used. 3. There was no significant difference in higher levels of cognitive thinking among

students using advance organizers written at divergent levels. 4. There was no significant difference in reading comprehension achievement among students of different reading abilities when advance organizers written on a literal level, or an interpretive level, or an evaluative level were used.

Results and Conclusions

The analysis of variance procedure was performed separately for each of the four dependent variables: 1) literal questions subtest score, 2) interpretive questions subtest score, 3) evaluative questions subtest score, and 4) total score on the posttest. Following are the significant results of the study: 1. The difference between fifth graders who used advance organizers and those who did not was non-significant at the $p > .90$ level. 2. The use of advance organizers of all kinds was detrimental to low readers ($p = .105$), of possible slight benefit to average readers ($p = .531$), and of significant benefit to high readers ($p = .009$). 3. High readers benefited significantly by using advance organizers of all six types when answering interpretive questions ($p = .005$). 4. In general, advance organizers containing evaluative-type questions produced lower posttest scores for average and low readers. Pupils reading in the upper third of the class comprehended the material significantly better when asked questions on any cognitive level prior to reading assignment. Pupils reading in the average range comprehended the material as well or better with or without questions of any kind asked prior to the reading assignment. Pupils reading in the lower third of the class comprehended the material less well when asked questions on any cognitive level prior to the reading assignment. The level of comprehension was significantly related to the reading level of the students.

THE DIFFERENCES BETWEEN READING TEACHER AND BUSINESS TEACHER-ESTABLISHED PURPOSES FOR READING TWO FUNCTIONS OF LANGUAGE
Order No. 7730844

McMILLIN, Larry Melvelle. Ed.D. University of Northern Colorado, 1977. 244pp.

This study investigated the differences between reading teacher and business teacher-established purposes for reading the most common business textbook components with the language functions "to control action" and "to order thinking." The subjects in the study were thirty-one secondary reading teachers and thirty-one secondary business teachers distributed proportionately over the State of Colorado.

A sample of recent business-related textbooks was tabulated to identify the most common business textbook components. The selected components were: a problem, a direction, a background explanation, and a definition. Jury I was selected to validate the selected components as typical of the component they represent. Jury II validated the function of the language in each selected component. The problem and direction consist of the language function "to control action." The background explanation and definition consist of the language function "to order thinking."

An Analysis Packet was developed containing these four components and instruction to the teacher to write five questions they would want students to be able to answer. Jury III established an appropriateness standard of purposes for reading each component. Jury IV translated the teacher-established questions into purposes for reading each component. An appropriateness rating was attributed to the purposes for reading and the mean scores for each component were computed.

A two-way analysis of variance with repeated measure on one variable (reading and business teachers) and a nested factor on the other variable (functions of language) was used. A Scheffé Test of Multiple Comparisons was used to isolate the sources of variance.

The hypothesis of no significant differences between the reading teachers' and the business teachers' established purposes for reading was accepted, and the hypothesis of no significant differences in the reading teacher and business teacher-established purposes between the function of language of control action and to order thinking was rejected.

Conclusions

This study suggests that the purposes for reading which secondary reading teachers and secondary business teachers establish for business textbook components vary between the language functions "to control action" and "to order thinking." The statistical evidence also supports the conclusion that secondary reading teachers and secondary business teachers establish similar purposes for reading business textbook components with the language functions "to control action" and "to order thinking."

Implications for classroom teachers do not exist at this time because many dimensions of the functions of language need to be researched. Recommendations for further research concerning the functions of language in the reading process are included.

FACTORS IN READING DIFFICULTY OF WORLD HISTORY TEXTBOOKS
Order No. 7807350

MILLER, William Blaine, Ph.D. The University of Texas at Austin, 1977. 119pp. Supervisor: Clark C. Gill

The purposes of the study were to predict the readability, or level of difficulty, of world history textbooks and to identify factors which cause some materials to be more difficult than others. To accomplish the first purpose, the researcher applied the Fry Readability Graph to three samples of randomly-selected evenly-spaced one hundred-word passages from each of the five world history textbooks approved by the Texas State Board of Education in November 1976. One sample contained three passages, a second ten, and a third twenty-five. Two word counts were utilized for each of the 190 passages--one in which proper nouns and proper adjectives were counted, and one in which proper nouns and proper adjectives were omitted.

The findings from the first part of the study are as follows. Using 10th grade as the grade at which world history is most frequently taught in Texas, according to the largest sample, one textbook is below grade level, one is at grade level, and three are above grade level. The range of difficulty within each textbook is from as little as five grades to as much as ten grades. Each sample produced a different order of difficulty. No textbook had the same grade level of difficulty on each sample. Including proper nouns and proper adjectives in the word count increased the difficulty of each sample by an average of 1.56 grades.

To accomplish the second purpose, the researcher applied the criteria of difficulty of Fry's Kernel Distance Theory, the correlates of Rosenshine's concept of horizontal readability, counts of relational, conjunctive, and disjunctive concepts, and counts of the number of words per independent clause unit (T-unit) to one 2500 word passage on a common topic from each of the five textbooks. The Fry Readability Graph was applied to each passage to predict the order of difficulty. Of the factors said to cause difficulty in reading materials, only the number of words per independent clause unit and Rosenshine's correlates of the number of paragraphs written according to a rule-example-rule pattern and the total number of examples were related to the difficulty of the passages.

The researcher concluded that world history textbooks are, for the most part, more difficult than the grade for which they are intended and that there appears to be little relationship between factors predicting the difficulty of reading materials and factors causing the difficulty of reading materials. He recommended that the Texas Education Agency conduct readability studies of proposed textbooks independent of those undertaken by publishers and that further research be done to determine the causes of difficulty.

AN INVESTIGATION OF DISADVANTAGED EIGHTH GRADE STUDENTS' SOCIAL STUDIES CONCEPT ATTAINMENT, STUDY SKILLS, AND READING COMPREHENSION

PRICE, Patrick Charles, Ph.D.
Georgia State University – School of Education, 1977

Purpose

The purpose of the study was to examine the relationship of the reading comprehension, study skills, and social studies concept attainment of disadvantaged eighth grade students by a program fusing concept development lessons and work-study skills instruction.

Methods and Procedures

The sample was forty-seven eighth grade students identified as disadvantaged poor readers. Thirty-two were in the treatment group, fifteen in the control group.

Studies in the treatment group were given a treatment of individual learning packets emphasizing the following work-study skills: map reading; using charts, graphs, and tables; using the textbook; and reference skills. The portion of the treatment was six social studies concept development lessons based upon D. Cecil Clark's prescriptions. The learning packets and concept lessons were administered over a seven week period.

The dependent measures administered in the pre- and post-situations were Test R, Reading Comprehension, and Test W, Work-Study Skills, of the Iowa Tests of Basic Skills; and the Social Studies Test, Form 3A, of the Sequential Tests of Educational Progress, Series II. Subjects randomly chosen from both groups were administered a structured interview to test for concept attainment.

The data from the measures was used to compare the treatment and control groups. For the purpose, three statistical and one nonstatistical null hypothesis were developed: 1. Means will be equal on pretest scores for the treatment and control groups using the standardized tests. 2. Means will be equal on posttest scores for the treatment and control groups using the standardized tests. 3. Means will be equal on the differences between pretest and posttest scores for the treatment and control groups using the standardized tests. 4. There will be a significant difference in concept attainment between the treatment and control groups as shown by contrasting the results of pretest and posttest structured interviews.

A multivariate analysis of variance was used to test the first three hypotheses. The fourth nonstatistical hypothesis was tested by comparing the averages of the numerically quantified responses to the interviews.

Results

One of the three statistical null hypotheses was rejected: Hypothesis 3 regarding the comparison among the differences between pretest and posttest means on measures of reading comprehension, social studies achievement, and work-study skills achievement. Further analysis indicated that the total work-study skills mean was responsible for the significant multivariate F.

A multivariate analysis of the difference between the pretest and posttest scores for the three work-study skills subtests indicated that the significant F was attributable to the mean on subtest W–2, Reading Graphs and Tables.

Hypothesis 4, which was nonstatistical, was accepted on the grounds that there was no difference between the treatment and control groups when posttest scores on the structured interviews were compared. However, the treatment group demonstrated a large growth in concept attainment from the pretest to posttest.

Conclusions

As a result of the findings of this study, the following conclusions were reached: 1. A program emphasizing work-study skills as considered here does not have an effect upon reading comprehension and social studies concept attainment. 2. This study does not provide sufficient data for either the acceptance or rejection of the position adopted for this study that a fusion of concept development lessons and work-study skills instruction would be a useful tool for helping students with reading difficulties comprehend social studies materials better. 3. Individual learning packets appear to be an effective way to teach some work-study skills. 4. The concept development prescriptions of D. Cecil Clark are an effective means of instruction.

Order No. 77-29,317, 255 pages.

AN ANALYSIS OF THE NATURE AND DIFFICULTY OF READING TASKS ASSOCIATED WITH BEGINNING OFFICE WORKERS' JOBS IN THE COLUMBUS, OHIO, METROPOLITAN AREA

Order No. 7805915

ROSS, Novella M., Ph.D. The Ohio State University, 1977. 156pp. Adviser: Professor Mildred Hillestad

The present study compared the reading materials handled by beginning office employees with the reading activities contained in the three most widely used instructional materials in the senior vocational office education classes. A random sample of 50 beginning office employees from businesses in the Columbus, Ohio, Metropolitan Area, stratified by industry, supplied copies of 358 items they read. These work samples were compared with 5,021 job experience activities in the two secretarial office procedure textbooks and a simulation kit, resulting in these findings: 1. More than 50 percent of all the reading samples collected from offices were read for actual comprehension, with letters, memos, and notes along with manuals and written instructions accounting for approximately 45 percent of all the comprehension samples collected. On the other hand, approximately 69 percent of all the reading activities sampled from the textbooks required some form of comprehension with letters, memos, and notes, in addition to written instructions constituting over 80 percent of the total activities read for comprehension in textbooks. Materials read for comprehension were also the dominant reading activities provided in the simulation materials, comprising 44.1 percent of the output of reading samples analyzed from these materials. Letters, memos, and notes made up 62.4 percent of the total simulation comprehension reading activities. 2. When beginning employees were separated into specific positions, some distinct differences were noted in the types and levels of reading activities. The items most consistently read by secretaries were letters, memos, and notes (26.4 percent), while clerks read more order forms, invoices, and account statements (20.7 percent). As a result, secretaries read more proofreading materials (36.4 percent) than clerks (23.6 percent). However, clerks read more materials for verification (20.3 percent) than secretaries (14.6 percent). 3. Some form of rough draft reading was the source of about 37 percent of the materials read in industry, but accounted for only 17.4 percent in the textbooks and 34.3 percent in the simulation materials. However, nearly 77 percent of all materials read from textbooks were in some printed form as compared to the 17.8 percent in the simulation materials and 32.7 percent in offices. On the other hand, of the total simulation materials analyzed, 47.8 percent of the reading materials were typewritten, and a smaller proportion of the total reading materials available in the textbooks were typewritten (5.9 percent), and 29.9 percent in industry. 4. Most written communication read by beginning office employees originated within the office. 5. Using the FORCAST formula, the mean reading grade level of all the instructional materials (12.4) was slightly higher than the mean of the reading grade level (11.5) of all the job-related materials. The textbooks (12.0 and 11.9) recorded a lower reading grade level than the simulation materials (12.9). However, no significant differences were found between the reading grade levels of the instructional materials and the reading grade level of the materials read in the office.

The following recommendations are made: 1. Students should be provided with opportunities to read all types of materials that are job-related including more emphasis on form letters, manuals, rate books, as well as statistical and financial tables. 2. Secretarial students should be trained with special emphasis on proofreading letters, memos, and notes. 3. Provisions should be made for clerical students to read order forms and invoices for verification of information using other sources to validate the accuracy of the materials. 4. Instructional materials should be organized so that step-by-step procedures are provided for carrying out a task, as in procedural manuals or job instruction sheets. 5. More handwritten and rough draft material should be given to the students to read and to type.

COMPREHENSION OF INFORMATION IN PICTURE-TEXT AMALGAMS IN PROCEDURAL TEXTS Order No. 7801675

STONE, David Edey, Ph.D. Cornell University, 1977. 104pp.

The study reported in this dissertation examined the effects of different pictures and picture-text amalgams on reading comprehension. Picture-text amalgams are combinations of illustrations and text.

A study was done to examine the effect of communicating directions for the assembly of a model loading cart in a single line drawing, segmented line drawings, or in a combination of text and line drawings on reading comprehension.

Reading comprehension was measured in terms of both reading behavior and task performance. Measures of reading behavior included the frequency, sequence, and duration with which subjects looked at illustrations, text, or model parts.

Measures of task performance included the speed of assembly, sequence of assembly and number and type of errors in assembly.

Both reading behavior and task performance were recorded on video tape and subsequently coded into a data structure which depicted each subject's reading behavior and task performance numerically.

Subjects were 28 females and 32 males enrolled in an undergraduate psychology course at Cornell University.

Results indicate that the addition of text to the line drawings used in the study resulted in significantly better comprehension of the directions.

A greater percentage of subjects followed the prescribed sequence of assembly when text and illustrations were presented together. In addition, the audition of text resulted in significantly fewer errors of assembly.

No significant difference was found in the speed of assembly, if the speed of assembly is considered to include time spent in looking at illustrations and text. If the speed of assembly is taken to be the amount of time spent working with the model parts, then significantly less time was required for the assembly of the parts when illustrations and text were presented together.

The effect of adding text to illustrations on reading behavior was to significantly reduce the duration and frequency with which subjects looked at line drawings.

The presentation of the line drawing of the model loading cart in one drawing or in segments had no significant effect on the comprehension of the directions.

Subjects looked at the segmented illustrations more frequently than the single illustration, but the duration of each look at the single illustration was longer.

The findings of this study are consistent with the conceptual framework for communications advanced in the dissertation.

This conceptual framework asserts that events may be categorized in terms of their extension in space-time, their sequential constraints, their number of substates, and their end-state information. It is shown that the information necessary for replication of these events may be thought of as having a structure replicating the characteristics of the photo-typical event.

It is also shown that communications media, by their very nature, impose constraints on the information structures to be communicated and that these constraints have consequences for the comprehension of that information.

READING LEVELS OF AUTOMOTIVE MECHANICS STUDENTS AS COMPARED TO READING LEVELS OF THREE MAJOR AUTO-MAKERS' REPAIR MANUALS Order No. 7806045

SUTTLE, Robert Lemuel, Ed.D. University of Georgia, 1977. 166pp. Supervisor: George O'Kelley, Jr.

This study was designed to show the need for a vocational curriculum that was understandable (readable) to the students for whom it was intended. The various readability studies done in the past were studied. The Dale 3,000 word list was then expanded to 9,000 words, called the Georgia Word List. A computerized version of the Dale-Chall Readability Formula was developed, and was used to establish the reading levels of the three major auto-mechanics manuals. The Nelson-Denny Reading Test was used to establish student reading levels. Only students enrolled in vocational auto-mechanics in Georgia area vocational-technical schools were used in the study. The S-O Score was developed in this study and is based on the researcher's theory that in vocational reading material, a student whose reading level is one standard deviation or higher above the mean reading level of the vocational material, could comprehend 100% of the material.

The purpose of the study was to validate the computerized version of Dale-Chall by correlating it to the Dale-Chall Readability Formula; the differences in the reading levels of the three auto-mechanics manuals; and the difference in the students' reading levels and the reading levels of the auto-mechanics manuals.

The objects of the study were: to develop a computer program to determine the reading level of material used in various vocational programs (using the Dale-Chall Readability Formula); to provide a method through which vocational instructors could apply the program to texts and related materials to determine the reading levels; to illustrate the program's use in writing and editing instructional material to a specific grade level; and to determine the minimum reading level needed for understanding the three auto-mechanics manuals published by the three major auto-manufacturers.

This study is significant because it provides a means for controlling the reading level of material as it is written, and provides a means for text simplification, allowing texts already in use to be modified to the students' reading levels. Its major attraction, however, is that it established a model for evaluation of the needs of vocational students.

THE EFFECTS OF ADVANCE ORGANIZERS AND BEHAVIORAL OBJECTIVES ON THE FACILITATION OF LEARNING AND RETENTION OF A BIOLOGY UNIT Order No. 7808438

VARANO, Samuel Peter, D.Ed. The Pennsylvania State University, 1977. 151pp. Adviser: H. Seymour Fowler

The purpose of this study was to investigate the effectiveness of advance organizers and behavioral objectives on the facilitation of learning and retention of a tenth-grade biology unit when the entering behaviors, mental ability and prior knowledge, were considered.

Four classes of BSCS Yellow Version Biology participated in the investigation. Of the 109 students originally taking part in the study, six were lost due to illness and/or other uncontrollable circumstances. Three sections were enrolled in the college preparatory curriculum while one section consisted of business education students.

One week prior to receiving the instructional treatment an investigator-constructed prior-knowledge test was administered to each student to determine his familiarity with the new instructional material. Mental-ability (I.Q.) scores from seventh-grade testing using the California Test of Mental Maturity were obtained. Scores from these two tests were used to partition the students into high and low groups to analyze for any interaction between the treatments and the entering behaviors.

Since four different treatments--(1) an advance organizer, (2) behavioral objectives, (3) advance organizer and behavioral

objectives, and (4) a historical passage--were used in each of four classes, the treatments were randomly assigned to each of the Ss in the study. The historical passage was utilized as a placebo for the control group. In order to control for reactive effects, the cover pages of the four treatments were identical. The Ss were instructed to carefully read the instructional treatment for ten minutes at the beginning of the first two instructional periods.

After a two-week period of instruction, in which Chapter 29 from the BSCS Yellow Version Biology (1968) was utilized as the instructional material, a 35-item multiple-choice immediate-learning test was administered. Long-term retention was determined by utilizing the same 35-item test eight weeks later. The prior-knowledge test and both post-criterion tests were constructed from resource books of test items developed for both Green and Yellow Version Biology by the Biological Sciences Curriculum Study.

The experimental data collected from the 103 tenth-grade biology students were analyzed for significant differences between the mean scores of the four treatments and also for interaction between the entering behaviors, prior knowledge and mental ability, using an analysis of variance technique. Both ANOVES and ANOVR programs were used for analysis. A correlational analysis was conducted for the variables I.Q., prior knowledge, immediate learning, and long-term retention using the PPMCR program.

No significant differences were observed at the .05 level of confidence between the four instructional treatments on immediate learning or long-term retention. In other words the four instructional treatments were similarly effective in facilitating immediate learning and long-term retention.

Significant differences were observed at the .05 level between the mean scores of the high and low I.Q. and prior-knowledge groups on the immediate-learning and long-term retention tests. However, no significant interaction was reported between the two entering behaviors (I.Q. and prior knowledge) and the four instructional treatments as measured by the immediate-learning and long-term retention post-criterion tests.

The results obtained in this study indicated that learning was enhanced for those students receiving the advance organizer treatment even though the differences in mean scores were not significant. In addition the entering behaviors, prior knowledge and mental ability (I.Q.), were identified as factors that could be utilized to indicate the learners' potential for integrating new meaningful material into their cognitive structure.

THE EFFECT OF THE SYMBOLS AND STRUCTURES OF MATHEMATICAL ENGLISH ON THE READING COMPREHENSION OF COLLEGE STUDENTS Order No. 7802512

WATKINS, Ann Esther, Ph.D. University of California, Los Angeles, 1977. 146pp. Chairman: Professor Harry F. Silberman

The language used in mathematics textbooks is a special form of English. Aside from the technical vocabulary, mathematical English (ME) uses symbols and characteristic grammatical structures, such as "if and only if," that are less frequently found in ordinary English (OE). This study was based on the observation that students have trouble understanding their mathematics textbooks and tend to blame the textbooks' language and use of symbols. The major hypothesis which follows from this observation is that students will understand mathematics better when concepts are rewritten with OE structures and without symbols.

Briefly, the experiment consisted of having each student study four short readings. The topics of convexity determinant, congruence of integers, and Cartesian product were counterbalanced over the following four treatment combinations: ME structures with symbols, ME structures without symbols, OE structures with symbols, and OE structures without symbols. Students were given a booklet containing an instruction sheet, the four readings, four tests on the readings, and a questionnaire on the student's background. They were allowed to work through the booklets at their own pace.

The experiment was conducted with three separate groups of college students enrolled in statistics for behavioral and health science majors at a state university ($n = 93$), trigonometry at a community college ($n = 27$), and precalculus at a campus of the University of California ($n = 40$).

A three-way factorial design with repeated measures on the first two factors was used. The levels of the first factor were symbols and no symbols. The levels of the second factor were ME structures and OE structures. The third factor was one of the following grouping variables: mathematics grade point average, sex, background in mathematics, SAT (verbal) score, or SAT (quantitative) score. The dependent variable was the score obtained on a test that followed each reading.

Data were analyzed by analysis of variance with repeated measures using one grouping variable at a time. The data were also analyzed by contingency table analysis for each topic separately.

The general result is that the ability of the students to work application problems was not significantly affected by whether the concept was written in OE or ME structures or with or without symbols ($p < .05$). In addition, there were no significant interactions of any of the grouping variables with either type of structures or use of symbols. There were, however, consistent trends within and between the three groups of students, although these did not reach significance. First, all three groups did better on treatments with symbols. Second, students with less background in mathematics consistently did better on treatments with OE structures and more experienced students did better on treatments with ME structures. The treatments in this experiment may have been too short for these effects to emerge significantly.

READING COMPREHENSION AND SOCIAL STUDIES CONTENT: A PREPARATION OF MATERIALS Order No. 7804473

WILKENS, Hannalyn Boxer, Ed.D. Columbia University Teachers College, 1977. 128pp. Sponsor: Professor Douglas R. McManis

The purpose of this study was to prepare and try out instructional materials designed to teach ninth-grade social studies content in a framework that addresses classroom reading problems. Textbooks normally used in the classroom were adapted to provide a structured sequential presentation of social studies themes to poor readers. Ten sample materials on the area studies unit of Latin America were developed and arranged in a format that presents social studies content, that provides a reading comprehension task, that preteaches vocabulary, and that supplies reinforcement and review exercises.

In adapting the texts and preparing the sample materials, certain guidelines were followed for selecting social studies topics, reading comprehension skills, reading passages, and vocabulary words. Procedures for condensing paragraphs, simplifying language, and constructing comprehension questions and review exercises are also provided.

A try out of the materials was conducted in a large urban high school. There was a wide range of student reading ability, with the class average two years below grade level. Pre- and post-testing of the students on subject matter revealed that twenty-two out of twenty-three students showed improved scores.

In general, the approach developed for this study appears to be a sensible beginning step towards more effective content matter teaching for poor readers. The materials have a wide range of usefulness--classroom activities, homework assignments, tests, and independent study devices. In addition, they may be adapted for other subject areas, different students, and additional instructional methodologies.

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